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SEQUENCE LISTING

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<120> GLYCOSYLTRANSFERASES OF HELICOBACTER PYLORI AS A NEW
TARGET IN PREVENTION AND TREATMENT OF H. PYLORI
INFECTIONS

<130> 12243.24USWO

<140> 10/019,214

<141> 2001-12-21

<150> PCT/CA00/00777

<151> 2000-06-28

<150> 60/140,820

<151> 1999-06-28

<160> 16

<170> PatentIn Ver. 2.1

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 Glu Gly Gly Leu His Pro Leu Val Lys Lys His Leu His Pro Tyr Phe
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 65 70 75 80
 Glu Val Ser Lys Phe Tyr Tyr Ala Leu Lys Tyr His Ala Lys Phe Met
 85 90 95
 Ser Leu Gly Glu Leu Gly Cys Tyr Ala Ser His Tyr Ser Leu Trp Glu
 100 105 110
 Lys Cys Ile Glu Leu Asn Glu Ala Ile Cys Ile Leu Glu Asp Asp Ile
 115 120 125
 Thr Leu Lys Glu Asp Phe Lys Glu Gly Leu Asp Phe Leu Glu Lys His
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 145 150 155 160
 Ser Val Lys Ser Glu Pro Leu Ser His Lys Asn His Glu Ile Gln Glu
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 Arg Val Gly Ile Ile Lys Ala Tyr Ser Glu Gly Val Gly Thr Gln Gly
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 Tyr Val Ile Thr Pro Lys Ile Ala Lys Val Phe Leu Lys Cys Ser Arg
 195 200 205
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 Gly Val Lys Asn Leu Val Leu Gln Pro Phe Val Ile Ala Asp Asp Glu
 225 230 235 240
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His Cys Leu Val Asp Asn Leu Ser Leu Glu Asn Gln Ser Lys Leu Lys
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Glu Thr Leu Ala Pro Phe Ser Ala Phe Ser Ser Leu Glu Phe Leu Asp
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Ile Ser Thr Pro Asn Leu His Ala Thr Pro Ile Glu Pro Ser Ala Ile
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 210 215 220
 Glu Glu Arg Leu Leu Asn Leu Thr His Gln Lys Gly Gln Cys Val Phe
 225 230 235 240
 Tyr Pro Glu Gln Asp Leu Leu Thr Leu Ala Cys Tyr Gln Lys Val Leu
 245 250 255
 Ile Leu Pro Tyr Ile Tyr Asn Thr His Pro Phe Met Ala Asn Gln Lys
 260 265 270
 Arg Phe Ile Pro Asp Lys Lys Glu Ile Val Met Leu His Phe Tyr Phe
 275 280 285
 Val Gly Lys Pro Trp Val Leu Pro Thr Phe Ser Tyr Ser Lys Glu Trp
 290 295 300
 His Glu Thr Leu Leu Lys Thr Pro Phe Tyr Ala Glu Tyr Ser Val Lys
 305 310 315 320
 Phe Leu Lys Gln Met Thr Glu Cys Leu Ser Leu Lys Asp Lys Gln Lys
 325 330 335
 Thr Phe Glu Phe Leu Ala Pro Leu Leu Asn Lys Lys Thr Leu Leu Glu
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Leu	Leu	Lys	Ala	Ile	Lys	Lys	His	Gln	Ile	Lys	Arg	Leu	Ile	Leu	Glu
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 Asp Asn Thr Lys Lys Ser Phe Phe Arg Leu Leu Ala Ile His Lys Leu
 65 70 75 80
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 100 105 110

Gly Phe Ala Gln Phe Phe Arg Ser Leu Phe Leu Ser His Ala Ile Ala
 115 120 125
 Pro Ala Pro Lys Glu Tyr His Gln Val Glu Lys Tyr Cys Phe Leu Phe
 130 135 140
 Ser Gln Phe Leu Glu Lys Glu Leu Asp Gln Lys Ser Val Leu Pro Leu
 145 150 155 160
 Lys Leu Ala Phe Asn Leu Pro Thr His Thr Pro Asn Thr Pro Lys Lys
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 180 185 190
 Ala Ser Tyr Tyr Ala Glu Val Ser Ala Val Leu Leu Glu Lys Gly His
 195 200 205
 Glu Ile Tyr Phe Phe Gly Ala Lys Glu Asp Ala Ile Val Ser Glu Glu
 210 215 220
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 245 250 255
 Arg Ile Ala Val Leu Asp Leu Phe Ile Thr Asn Asp Ser Gly Pro Met
 260 265 270
 His Val Ala Ala Ser Met Gln Thr Pro Leu Ile Ala Leu Phe Gly Pro
 275 280 285
 Thr Asp Glu Lys Glu Thr Arg Pro Tyr Lys Ala Gln Lys Thr Ile Val
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Thr	His	His	Gln	Val	Gln	Ile	Phe	Asp	Ala	Ile	Tyr	Ser	Lys	Thr	Phe
			35				40					45			
Glu	Gly	Gly	Leu	His	Pro	Leu	Val	Lys	Lys	His	Leu	His	Pro	Tyr	Phe
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Ile	Thr	Gln	Asn	Ile	Lys	Asp	Met	Gly	Ile	Thr	Thr	Ser	Leu	Ile	Ser
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Glu	Val	Ser	Lys	Phe	Tyr	Tyr	Ala	Leu	Lys	Tyr	His	Ala	Lys	Phe	Met
				85					90					95	
Ser	Leu	Gly	Glu	Leu	Gly	Cys	Tyr	Ala	Ser	His	Tyr	Ser	Leu	Trp	Glu
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Lys	Cys	Ile	Glu	Leu	Asn	Glu	Ala	Ile	Cys	Ile	Leu	Glu	Asp	Asp	Ile
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Arg	Val	Gly	Ile	Ile	Lys	Ala	Tyr	Ser	Glu	Gly	Val	Gly	Thr	Gln	Gly
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Tyr	Val	Ile	Thr	Pro	Lys	Ile	Ala	Lys	Val	Phe	Lys	Lys	His	Ser	Arg
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Lys	Trp	Val	Val	Pro	Val	Asp	Thr	Ile	Met	Asp	Ala	Thr	Phe	Ile	His
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Gly	Val	Lys	Asn	Leu	Val	Leu	Gln	Pro	Phe	Val	Ile	Ala	Asp	Asp	Glu
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35 40 45

His Cys Leu Val Asp Asn Leu Ser Leu Glu Asn Gln Cys Lys Leu Lys
50 55 60

Glu Thr Leu Ala Pro Phe Ser Ala Phe Met Ser Val Asp Phe Leu Asp
65 70 75 80

Ile Ser Thr Pro Asn Leu Tyr Thr Pro Ser Ile Glu Pro Ser Ala Ile
85 90 95

Asp Lys Ile Asn Glu Ala Phe Leu Gln Leu Asn Ile Tyr Ala Lys Thr
 100 105 110
 Arg Phe Ser Lys Met Val Met Cys Arg Leu Phe Leu Ala Ser Leu Phe
 115 120 125
 Pro Gln Tyr Asp Lys Ile Ile Met Phe Asp Ala Asp Thr Leu Phe Leu
 130 135 140
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 145 150 155 160
 Gly Ala Ala Lys Asp Phe Ser Ser Pro Lys Asn Leu Lys His Phe Gln
 165 170 175
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 180 185 190
 Tyr Leu Lys Glu Lys Asp Met Lys Ile Ile Cys Glu Asn His Tyr Asn
 195 200 205
 Val Gly Phe Leu Ile Val Asn Leu Lys Leu Trp Arg Ala Asp His Leu
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 225 230 235 240
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 245 250 255
 Gln Leu Pro Tyr Ile Tyr Asn Thr His Pro Phe Met Val Asn Gln Lys
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 Arg Phe Ile Pro Asn Lys Lys Glu Ile Val Met Leu His Phe Tyr Phe
 275 280 285
 Val Gly Lys Pro Trp Val Leu Pro Thr Ala Leu Tyr Ser Lys Glu Trp
 290 295 300
 His Glu Thr Leu Leu Lys Thr Pro Phe Tyr Ala Glu Tyr Ser Val Lys
 305 310 315 320
 Phe Leu Lys Gln Met Thr Glu Phe Leu Ser Leu Lys Asp Lys Gln Lys
 325 330 335
 Thr Phe Glu Phe Leu Ala Pro Leu Leu Asn Lys Lys Thr Leu Leu Glu
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 Tyr Val Phe Phe Arg Leu Asn Arg Ile Phe Lys Arg Leu Lys Glu Lys
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Leu Gly Thr Arg Leu Thr Leu Lys Ile Ala Lys Leu Leu Glu Cys Glu
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Lys His Phe Glu Ile Ile Pro Val Phe Lys Asn Ile Pro Ala Phe Tyr
      50              55              60

Asp Leu Lys Lys Gln Gly Val Phe Trp Ala Met Lys Asp Phe Leu Trp
      65              70              75              80

Leu Leu Lys Ala Leu Lys Lys His Lys Ile Lys His Leu Ile Leu Glu
      85              90              95

Lys Gln Asp Phe Arg Ser Ala Leu Leu Ser Lys Phe Val Ser Ile Thr
      100             105             110

Thr Pro Asn Lys Glu Ile Lys Asn Ala Tyr Gln Asn Arg Gln Glu Leu
      115             120             125

Phe Ser Gln Ile Tyr Gly His Val Phe Asp Asn Ser Gln Tyr Ser Met
      130             135             140

Ser Leu Lys Asn Pro Lys Lys Ile Leu Ile Asn Pro Phe Thr Arg Glu
      145             150             155             160

Asn Asn Arg Asn Ile Ser Leu Glu His Leu Gln Ile Val Leu Lys Leu
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Leu Lys Pro Phe Cys Val Thr Leu Leu Asp Phe Glu Glu Arg Tyr Ala
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Phe Leu Lys Asp Glu Val Ala His Tyr Arg Ala Lys Thr Ser Leu Glu
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 Glu Ala Lys Asn Leu Ile Leu Glu Ser Asp Leu Tyr Ile Gly Gly Asp
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 Ser Phe Leu Ile His Leu Ala Tyr Tyr Leu Lys Lys Asn Tyr Phe Ile
 225 230 235 240
 Phe Phe Tyr Arg Asp Asn Asp Asp Phe Met Pro Pro Lys Asn Glu Asn
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 tatcgtgcta aaaccagttt agaagaagtt aaaagcctga ttttagaaag cgattttgat 660
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 tttttttata gggataatga cgatttcatg ccacctaata gtaagaagga aaattttcta 780
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 Leu Gly Thr Arg Leu Thr Leu Lys Ile Ala Lys Leu Leu Glu Cys Glu
 35 40 45
 Lys His Phe Glu Ile Ile Pro Ile Phe Glu Asn Ile Pro Ala Phe Tyr
 50 55 60

Asp	Leu	Lys	Lys	Gln	Gly	Val	Phe	Trp	Ala	Met	Lys	Asp	Phe	Leu	Trp	65	70	75	80
Leu	Leu	Lys	Ala	Ile	Lys	Lys	His	Lys	Ile	Lys	His	Leu	Ile	Leu	Glu	85	90	95	
Lys	Gln	Asp	Phe	Arg	Ser	Phe	Leu	Leu	Ser	Lys	Phe	Val	Ser	Ile	Thr	100	105	110	
Thr	Pro	Asn	Lys	Glu	Ile	Lys	Asn	Val	Tyr	Gln	Asn	Arg	Gln	Glu	Leu	115	120	125	
Phe	Ser	Pro	Ile	Tyr	Gly	His	Val	Phe	Asp	Asn	Pro	Pro	Tyr	Pro	Met	130	135	140	
Asn	Leu	Lys	Asn	Pro	Lys	Lys	Ile	Leu	Ile	Asn	Pro	Phe	Thr	Arg	Ser	145	150	155	160
Ile	Glu	Arg	Ser	Ile	Pro	Leu	Glu	His	Leu	Lys	Ile	Val	Leu	Lys	Leu	165	170	175	
Leu	Lys	Pro	Phe	Cys	Val	Thr	Leu	Leu	Asp	Phe	Glu	Glu	Arg	Tyr	Ala	180	185	190	
Phe	Leu	Gln	Asn	Glu	Ala	Thr	His	Tyr	Arg	Ala	Lys	Thr	Ser	Leu	Glu	195	200	205	
Glu	Val	Lys	Ser	Leu	Ile	Leu	Glu	Ser	Asp	Leu	Tyr	Ile	Gly	Gly	Asp	210	215	220	
Ser	Phe	Leu	Ile	His	Leu	Ala	Tyr	Tyr	Leu	Lys	Lys	Asn	Tyr	Phe	Ile	225	230	235	240
Phe	Phe	Tyr	Arg	Asp	Asn	Asp	Asp	Phe	Met	Pro	Pro	Asn	Gly	Lys	Lys	245	250	255	
Glu	Asn	Phe	Leu	Lys	Ala	His	Lys	Ser	His	Tyr	Ile	Glu	Gln	Asp	Leu	260	265	270	
Ala	Lys	Lys	Phe	Arg	His	Leu	Gly	Leu	Ile	Ile	275	280							